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RENNER, OTTO, BOISSELLE & SKLAR, LLP  
Nineteenth Floor  
1621 Euclid Avenue  
Cleveland, OH 44115-2191

EXAMINER
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SHAHRESTANI, NASIR

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/634,133  
Filing Date: August 04, 2003  
Appellant(s): VILSMEIER ET AL.

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Stefan Vilsmeier  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 7/13/2010 appealing from the Office action mailed 02/17/2010.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1-20 stand rejected.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being

maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

6,405,072	Cosman	6-2002
6,733,485	Whitehurst	5-2004

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman (U.S. 6,405,072) in view of Whitehurst et al. (U.S. 6,733,485).

Cosman teaches a method for detecting a target volume (title) in radiotherapy or radiosurgery (fig. 2), the method comprising: referencing a marker in the vicinity of the target volume (col. 3 lines 29-36) in order to provide parameters indicative of a target volume.

Cosman teaches the use of markers (ex-vivo) but does not specifically address the use of internally placed implants. Furthermore, Cosman teaches stimulation of the markers but does not specifically teach the inductive stimulation of such implants to provide data indicative of a target volume.

Whitehurst et al. teach referencing at least one implant in the vicinity of the target volume (fig. 6) and inductively stimulating the at least one implant (inductive coil 146).

It would have been obvious to one of ordinary skill in the art at the time of invention to have modified Cosman and to have included implant localization and stimulation as taught by Whitehurst in order to provide a clear representation of a target volume while stimulating implanted elements that would provide a further indication of a location as well as the potential for therapeutic applications.

Cosman further teaches introducing the at least one implant into the patient in the vicinity of the target volume (column 11 lines 4-5); detecting the position of the implant using an imaging system (column 1 lines 65-67); and referencing an implant relative to inner organs and anatomical structures (column 3 lines 29-32).

Cosman further teaches moving the patient to a therapy device after detecting the implant (column 3 lines 42-46; column 7 lines 1-6); and generating an electromagnetic field in the vicinity of but outside the patient (column 20 lines 28-31), wherein the implant inherently inductively absorbs energy and at least partially re-emits the absorbed energy being in the form of a second EM signal; and detecting said second EM signal outside the patient (column 4 lines 62-67); and determining the position of said implant relative to measuring points at which said second EM signal is detected and position of said measuring points relative to the therapy device being inherently known by user (fig. 2; fig. 10).

Cosman further teaches activating the therapy device only when the position of the target volume is within a predetermined range about a current target point of the therapy device (column 21 lines 6-28).

Cosman further teaches shifting the patient for the target volume to be captured by a therapy beam (fig. 4 element 75), and further teaches adjusting a therapy beam to the position of the target volume (fig. 4 elements 76 & 85).

Cosman further teaches continuously detecting the position of the implant and determining a shift in the position of the target volume caused by breathing based on the detected position (dashed lines 155; column 16 lines 60-67).

Cosman further teaches wherein the measuring points are situated on a rotating portion of a linear accelerator (fig. 11 elements 40A, 40B, 40C).

Cosman further teaches wherein the measuring points are integrated into a treatment couch of the therapy device (fig. 11 elements 32, 30, 31).

Cosman further teaches wherein one or more measuring points are attached to a solid mobile structure as mentioned above, which position relative to the therapy device is tracked three-dimensionally by means of a real-time tracking system (column 7 lines 25-41; column 8 lines 31-41).

Cosman further teaches at least one of the steps is performed in a space adjacent to a treatment position (fig. 7); and a wherein a tracking system additionally tracks the movement and position of external infrared markings (arrows 26), wherein the position and movement of the implant is referenced with respect to the position and movement of the external markings, and wherein positioning, are based only on tracking the external markings (abstract; column 2 lines 21-37).

Cosman in view of Whitehurst et al. teach all the limitations as described above and further teach determining the position of the implant relative to measuring points

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(column 3 lines 42-46; column 7 lines 1-6), being connected to the patient or to a couch (fig. 1; fig. 7); and teaches the measuring points are fitted with reference means and patient being moved to the measuring device using reference (fig. 4) and further teaches a three-dimensional tracking system being an optical infrared camera (camera C2).

However, Cosman in view of Whitehurst do not teach the patient being situated in a space or region in which there are few interference fields as possible and in which there are as few metallic parts as possible. Conventional Radiotherapy practices teach the aforementioned limitations and precautions, being well-known in the art and official notice of such is taken. It would have been obvious to one of ordinary skill in the art to have modified the method as taught by Cosman in view of Whitehurst and to have further included the step of situating the patient for Radiotherapy in an area with few interference fields and external metallic parts in order to prevent distortion in transmission signals and to provide for accurate detecting means.

#### **(10) Response to Argument**

In response to Appellant's argument that a prima facie case of obviousness has not been established, the Examiner respectfully disagrees.

Initially, Appellant had alleged that the prior art references of record do not teach or fairly suggest "determining a position of the at least one implant based on the detected emission and determining a current position of the target volume based on the determined position of the at least one implant" as required by the claim language. The Cosman reference has provided clear teachings with respect to positional referencing of markers, subsequent to stimulation, and determination of a position of a target volume based on the determined position of the markers (abstract). Absent from the Cosman reference, as

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stated in the final rejection, is a teaching of marker implants and the inductive stimulation of such. The Whitehurst et al. reference was applied to cure the deficiencies within Cosman, providing a clear teaching of numerous implants (fig. 6) that are inductively stimulated and positionally referenced with respect to the stimulator and each-other.

Secondly, Appellant has stated that the Whitehurst reference discloses that the stimulator may be inductively stimulated, for purposes of powering the device and to communicate data to/from the simulator. Appellant has argued that Whitehurst is silent with respect to determining a position of the stimulator based on the detected emissions from the stimulator. Examiner respectfully highlights the fact that the Whitehurst reference was applied as a reference which teaches inductive stimulation of implants, thus providing a confirmation of their location with respect to the stimulator as well as one-another. The current claim has no language which necessitates the determination of the position of the stimulator.

Furthermore on page 13, Appellant has alleged that absence, from the Cosman reference, the generation of a dynamic electromagnetic field in the vicinity of but outside the patient, wherein the at least one implant inductively absorbs energy via the electromagnetic field and the at least one implant at least partially re emits the absorbed energy. Examiner respectfully points out that Cosman teaches all the above stated limitations with the exception of inductive stimulation of implants, a deficiency made obvious by the teachings of Whitehurst.

With respect to claim 4, appellant argues that knowledge of inner organs is not taught within the claimed language. Examiner respectfully disagrees and maintains that a



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user, or one skilled in the art carrying out the procedures of the prior art references, has a broad knowledge of inner organs.

With respect to claim 7, Examiner maintains that the Cosman reference reasonably teaches the outlined limitations since detection and comparison of data necessitates continuous detection. More specifically, data with respect to position is compared and adjustments are made based on positional referencing, which inherently translates to continuous detection.

With respect to claim 8, it is clearly taught that a procedure/therapy is carried out based on received data. Hence, therapy is activated only when a target is within a desired/predetermined range.

The remainder of the dependent claims that appellant has argued follow the same line of reasoning as outlined above and as such, Examiner's comments above are applicable to the remainder of what Appellant believes to be deficient from the Final Office Action.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Nasir Shahrestani/

Examiner, Art Unit 3737

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Conferees:

/BRIAN CASLER/

Supervisory Patent Examiner, Art Unit 3737

/Thomas J Sweet/

Supervisory Patent Examiner, Art Unit 3739